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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,657	10/26/2006	Shigeru Nishio	64851 (70904)	2426
21874	7590	01/04/2011		
EDWARDS ANGELL PALMER & DODGE LLP				
P.O. BOX 55874				
BOSTON, MA 02205				
EXAMINER				
LEGESSE, HENOK D				
ART UNIT		PAPER NUMBER		
2861				
MAIL DATE		DELIVERY MODE		
01/04/2011		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/567,657

**Applicant(s)**

NISHIO ET AL.

**Examiner**

HENOK LEGESSE

**Art Unit**

2861

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 October 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-9, 11 and 13-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10 and 12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-945)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. The amendment to the specification filed on 10/21/2010 is accepted. Thus, the objection made to the specification in the office action mailed on 07/21/2010 is withdrawn.

***Response to Arguments***

2. Applicant's argument filed on 10/21/2010 with respect to the rejection(s) of claim(s) 10 and 12 under 35 USC 103(a) in view of reference Oguchi et al have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection on the merits of claims 10 and 12 is made as follows:

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hotomi (US 5,477,249) in view of Nou (US 2003/0025744) and/or Mantell (US 6,264,298) and/or Yamada (US 2003/0085940).

**Regarding claim 10**, Hotomi teaches an electrostatic suction type fluid discharge device (figs.1,12) which discharges by electrostatic suction a fluid (ink 6, fig.1), which is electrically charged by voltage application, from a fluid discharge hole of a nozzle (15) of a discharge head (1) onto a substrate (16) opposite to the nozzle (15), wherein:

the fluid discharge hole, provided in the nozzle (nozzle hole 15), has a diameter ranging from  $0.01\mu\text{m}$  to  $25\mu\text{m}$  (col.3 lines 60-61),

the electrostatic suction type fluid discharge device (fig.1) comprises line-drawing means (13) for applying a voltage between the nozzle (15) and the substrate (16) while relatively moving the nozzle (15) and the substrate (16) so as to carry out line-drawing (during printing the head 1 and the substrate 16 are relatively moved), the voltage being equal to or greater than a minimum voltage to induce discharge, that is a voltage required to start discharge of the fluid (voltage is applied by the control unit 13 to cause discharge of droplet 1d, fig.3), Hotomi further teaches intermittent discharge (1d) is

performed at a frequency depending on the voltage and an electric conductivity of the fluid (col.4 lines 3-13,59-66 and figs.1-3,12).

Hotomi does not explicitly teach controlling a speed of the relative movement so that adjacent ones of discharge pattern are partly overlaid with each other.

However, Nou teaches fluid discharge device including controlling a speed of the relative movement so that adjacent ones of discharge pattern are partly overlaid with each other (the abstract, paragraphs 0017,0088).

Similarly, Mantell teaches fluid discharge device including controlling a speed of the relative movement so that adjacent ones of discharge pattern are partly overlaid with each other (col.8 lines 13-40, col. 11 lines 32-54).

Yamada also teaches fluid discharge device including controlling a speed of the relative movement so that adjacent ones of discharge pattern are partly overlaid with each other (paragraphs 0065-0067,0074).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify ejection device of Hotomi such that to form overlapping droplets on the medium by controlling the relative speed based on the teachings of Nou and/or Mantell and/or Yamada in order to form a high resolution and high quality image more stably and at high speed.

**Regarding claim 12**, Oguchi et al as modified by Nou and/or Mantell and/or Yamada above further teaches wherein, the line-drawing means controls the voltage or the speed of the relative movement so that the adjacent ones of discharge pattern are

overlaid with each other by 0.5 to 1.5 times of a vertical diameter of each pattern, the vertical diameter being a diameter orthogonal to a direction of the relative movement (the abstract, paragraphs 0017,0088 of Nou; col.8 lines 13-40, col. 11 lines 32-54 of Mantell teaches overlapping of adjacent drops/patterns by one half or more of their diameter).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HENOK LEGESSE whose telephone number is (571)270-1615. The examiner can normally be reached on Mon.- Fri. Between. 8:00 AM-6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MATTHEW LUU can be reached on (571)272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MATTHEW LUU/  
Supervisory Patent Examiner, Art  
Unit 2861

H.L.  
December 30, 2010